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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,866	10/23/2003	Paul A. Ward	CSLL-639CN (56247-)	6735
7590 05/01/2006			EXAMINER	
McDermott, Will & Emery 28 State Street Boston, MA 02109-1775			CORRIELUS, JEAN B	
			ART UNIT	PAPER NUMBER
			2611	

DATE MAILED: 05/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/691,866

Applicant(s)

WARD ET AL.

Examiner

Jean B Corielus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-26,36,37,41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-26,36,37,41 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 3/6/06 with respect to claims 24-26, 36, 37, 41 and 42 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claims 24-26 and 41 are objected to because of the following informalities: Claim 24, line 6, "sensor" should be replaced by "vibratory accelerometer". Claim 41, line 7, "sensor" should be replaced by "accelerometer". Note that any claim whose base claim is objected is likewise objected.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 37 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 37, line 1, the limitation "said vibratory sensor" lacks of proper antecedent basis. Note that the scope of the claim is unclear. Therefore the claim will not be further examined on the merit.

Claim Rejections - 35 USC § 103

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 24-26, 36, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birgenheier et al US Patent No. 5,187,719 in view of Bonta et al US Patent No. 5,245,347 and further in view of applicant's disclosure page 12, lines 9-17.

As per claim 24, Birgenheier et al teaches figs. 2-3 a digitizer 19 (analog to digital) converter which receives an analog signal and converts the analog signal to a digital signal to form an inphase component I of said signal; a -90 degrees (Hilbert) transformer approximation device see col. 6, line 56 which receives said digital signal and produces the quadrature component of said digital signal by introducing a phase shift to said digital signal see col. 7, lines 1-3; an amplitude computation device 66 which receives said I and Q components and computes the instantaneous amplitude of said digital signal according to $a = \text{SQRT}(Q^2 + I^2)$ and see fig. 3; device 66 further includes a phase computation device which receives said I and Q components and computes the instantaneous phase of said digital signal according to $\theta = \text{ARCTAN}(Q/I)^{-1}$. Note that the input signal of Birgenheier is inherently a sinusoidal signal. However, Birgenheier does not explicitly teach a vibratory sensor for producing said analog signal in response to a measurement parameter. It further fails to teach a CORDIC processor is used to compute the phase and amplitude signal. Bonta et al teaches an apparatus (fig. 1) comprising a vibratory accelerometer 14 see col. 3, lines 20-26 and col. 21, lines

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63-64 for producing an analog signal in response to a measurement parameter (vibration) of an antenna 14 (object) 10 see col. 21, line 65-col. 22, line 3. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Birgenheier et al in order provide proper signal input source to the analog to digital converter so that proper measurement of the phase and amplitude of such a signal can be computed so as to eliminate vibration induced sidebands as taught by Bonta et al see col. 3, lines 25-26. Furthermore, at page 12, lines 9-17, applicant acknowledges that a CORDIC processor is a well known device used in signal processing for fast digital trigonometric computations. Given that it would have been obvious to one skill in the art to incorporate such a teaching in Birgenheier and Bonta and order to perform fast digital trigonometric computations.

As per claim 25 the Hilbert transformer introduces a predetermined delay into said quadrature component see col. 7, lines 1-3.

As per claim 26, the system further includes a delay device 33 which introduces said predetermined delay into said I component.

As per claim 36, see claim 24. In addition, Birgenheier teaches a filter 123 to attenuate out of band noise in said signal and a further includes a delay device 33 which introduces said predetermined delay into said I component.

As per claim 41, see claim 24. In addition, note that the analog signal generated by Bonta inherently includes both a phase and an amplitude of said parameter .

As per claim 42, see claim 24. In addition, Birgenheier teaches a filter 123 to attenuate out of band noise in said signal and a further includes a delay device 33 which

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introduces said predetermined delay into said I component. inherently includes both a phase and an amplitude of said parameter.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jean B. Cornelius
Primary Examiner
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4-28-06